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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/052,815	01/18/2002	Phillip L. Wimmer	10012053-1	3187

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HEWETT-PACKARD COMPANY  
Intellectual Property Administration  
P.O. Box 272400  
Fort Collins, CO 80527-2400

EXAMINER
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PADGETT, MARIANNE L

ART UNIT	PAPER NUMBER
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1762

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/28/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

## Office Action Summary

Application No.

10/052,815

Applicant(s)

WIMMER ET AL.

Examiner

Marianne L. Padgett

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 24 November 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-5, 7-21, 25, 26 and 33-36 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7-21, 25, 26, 33-36 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application
- ☐ Other: \_\_\_\_\_

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1. Applicants amendment of 11/24/2006 has corrected the objection to the specification on page 15.

Amendments to the claims have significantly clarify the meaning is there in, removing most previously discussed 112 problems.

Claim 1 has been amended so that the use of "an initiator" therein is clear, as long as one does not ascribe any intrinsic meaning to the word "initiator", which as employed by the specification is used in an extremely nonstandard sense, such that it would more appropriately be generically called --a component-- or the like. Note the language in claim 11 is sufficiently similar to also be considered clear.

Applicants have cited page 9, lines 24-29 of the application as providing a definition of "initiator" however quotation supposedly therefrom on page 13 of the 11/24/2006 response does not exist where cited, however it appears probable that applicants intended to cite page 9, lines 28-page 10, line 1, which while not directed to "initiators" in general as implied by applicants discussion provides a discussion of use of "cone initiators 56", which states "cone initiators 56 shield or shadow discrete portions 58 of the substrate 36. These shadowed portions do not ablate at the same rate that the substrate ablates, thereby reducing the local ablation rate in the shadowed region of the surface under the initiator and thus, 'initiate' the formation of the structures of the surface of the substrate". This is **NOT** a definition, but the discussion of an effect in a specific situation of what sounds like a specifically shaped objects, which happens to be called "initiators", and is sufficiently cryptic in the use of "initiate" that "initiate the formation of structures on the surface of the substrate" appears to refer to the entire ablation formation process, and certainly does not define the scope of the noun "initiator". The exemplary effects of a specific object labeled by a term which is being used in a nonstandard way, cannot be considered to provide a definition for all uses of that term.

Again applicant's citation & quote of page 11, lines 10-13, does not match the specification in the PTO's file, which appears to correspond to page 11, lines 14-17, and again specifically relate to "cone

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initiators 56" (emphasis added), not all generic initiators, and significantly examples of what the cone initiators may be does not define the scope, which has not previously been defined. As used in the specification, the examiner does not find that the word "initiator" has any relation to any conventionally used meaning of "initiator", but is used in the context of a particulate material capable of creating a shadow &/or resisting ablation, neither of which have anything to do with initiation of any action or effect, nor do they initiate anything during the process in the sense of the commonly used meaning of "initiating".

Applicants' discussion of the terms "shadow" & non-shadowed" on page 14 of their 11/26/2006 response is considered to provide file wrapper estoppel to the meaning of the term in the case, so as to include both actual shadows and situations where no light reaches a portion of an object (such as the interior of the object), i.e. for example by applicant's discussion, the surface of any object shadows its own interior, if that surface is not transparent to the radiation shining on it.

As per applicants' discussion/amendments in the response of 11/24/2006, any sort of mask or material that blocks laser radiation must be considered "an initiator" with respect to applicant's claims, and any material or composition that is applied thereto and in some way provides or promotes its own adhesion to the substrate must be considered "an adhesive".

2. The amendment filed 11/24/2006 is objected to under 35 U.S.C. 132(a) because it introduces new matter into the disclosure. 35 U.S.C. 132(a) states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: the changes on page 6 to the paragraph starting on line 14 are inclusive of new matter, because they create a new definition for the meaning of adhesive that differs from that of the original disclosure by being slightly narrower, but differs from the commonly accepted definition of an adhesive by being significantly broader, but no support was provided for this new scope of what is an "adhesive" in this disclosure. For instance, according to applicant's new definition, if one flows or paints

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(i.e. brushes on) paint or varnish on a surface, where it is not necessary to use a primer or the like to promote adhesion, that paint or varnish is defined by the present specification as "an adhesive" with respect to the substrate. Furthermore, if primer were necessary, the paint or varnish would be an "adhesive" with respect to the primer, while at the primer is an "adhesive" with respect to both paint or varnish and substrate. This differentiation in meaning is unsupported by the original specification, nor is it supported by common dictionary definitions, such as found on page 19 of Hackh's Chemical Dictionary, which states "**adhesive**. Any substance that sticks or binds materials together; as adhesive plaster or paste." While a material that adheres to another material is often said to be "adhesive" (a descriptive adjective) with respect to the effect of that adhering, that material itself is not necessarily considered to be "and adhesive" (the known), as such material as seen in the dictionary definition is generally considered a material that causes to separate materials which it is placed in between to adhere together, not merely itself. For these reasons, lacking a clear showing of support in the original specification, the new scope for the word "adhesive" (the noun) is considered to introduce New Matter. Note that if the amendment on page 12 had included after "... such adhesion" the additional phrase --of another material or surface to the substrate surface--, it would have been consistent with typical meanings of the noun "adhesive", but inconsistent with subsequent examples in the amended paragraph, such as vapor deposited metallic material.

Applicant is required to cancel the new matter in the reply to this Office Action.

3. Claims 1-20 & 33-36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

In independent claims 1, 10 & 18 applicants have added the requirement of a bond between the substrate and adhesive in the preambles, which is not commensurate scope with the body of the claims, because while all of the claims require applying an adhesive to the substrate, there is no requirement that

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a "bond" is created between the "adhesive" and substrate. It is also noted that applicants' redefinition of adhesive on page 6 while requiring that "adhesion" be provided or promoted does not necessarily require formation of a "bond", hence the mere use of the redefined "adhesive" does not necessitate the presence of "a bond". It is noted that since the claimed language appears to be discussing the bond in a macroscopic sense between the substrate & the adhesive, that the intent is probably not directed to the microscopic sense of chemical bonds, but due to the nonstandard use of the noun "adhesive", clarification is desirable.

Claim 3 is confusing with respect to amended claim 1, as it implies that the "initiator" is incorporated in the substrate, however even using applicant's definition of a shadow it is impossible for particles incorporated in the substrate to shadow the surface of that substrate, since they are not in position to prevent light directed at the surface for reaching the surface no matter how you define a shadow. Is there some critical aspect or action missing, which would make this limitation makes sense, such as concepts expressed in claim 18? Note that claim 12, dependent from claim 11 has an analogous problem

The independent claim 1 requires that "the initiator" is provided so that it forms a shadowed portion, which enables the formation of "the structures", but claim 4 has been amended so as to require something that is completely impossible, since due to use of past tense, it requires the structures to be formed before providing the initiator, or one could not determine what has not yet been formed. The examiner suspects that this contradictory language was inadvertent, and notes that phrasing that would appear to provide the intended meaning would be --determining the desired size...of the structures to be formed by...-- (emphasis added).

4. Claims 1 is objected to because of the following informalities: in claim 1, line 4, it is noted that it would be more grammatically correct to state --the initiator is configured--, rather than the present phrasing of "the initiator configured". Appropriate correction is required.

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5. As the teachings of Taylor et al., as discussed in sections 5-6 of the action mailed 8/23/2006 are not directed to any coating process (as is essentially claimed by the application of "an adhesive"), and now all claims have been amended to require the application of "an adhesive" the 102 & 103 rejections over Taylor et al. applied by itself, are removed by the amendments, as is the 102 over Brennan et al. (2005/0242059 A1  $\equiv$  6,919,62 B1).

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1-5, 7-8, 10-16, 18-20, 33 & 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brennan et al., optionally in view of Taylor et al., discussed in sections 5-6 & 11 of the action mailed 8/23/2006.

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The claims have been amended such that all of the now require the application of "an adhesive", wherein he said has been redefined again so that it is essentially inclusive of any coating which may be "flowed" on our conform to the surface, where that coating provides or promotes its own adhesion. As previously noted Brennan et al. as discussed in [0030] or equivalently in the patent discusses the use of laser surface roughening for promotion of adhesion and subsequent processing of substrate, thus even with the changes in applicants' meaning of "adhesive", it still would have been obvious to one of ordinary skill in the art to apply a coating material which has some capability of its own of adhering, to a surface that has been laser treated as in Brennan et al., as laser roughening is suggested as an old and well-known adhesion pretreatment, and because the use of a of a laser technique which improves the adhesion of something that already has some degree of adhesion, is consistent with that teaching and would have been expected to be desirable whether the roughening enables adhesion or improves adhesion that would have been present otherwise, as well as consistent with applicant's redefinition of "adhesive".

In [0086] of Brennan et al., note the teaching that roughening using laser ablation "relies on the phenomenon known as cone or cone formation. This cone formation occurs when the fluence of a laser pulse at the substrate is not high enough to completely remove a whole layer of material. Even a small particle of material that remains of the previous layer may be enough to initiate cone formation or cone-like features since this particle of material may not be removed by subsequent laser pulses but instead act as a sort of mask, creating a cone behind it as laser ablates further down into the material around the particle." Note that this explicitly reads on the process as claimed by applicant in lines 3-8 of claim 1. Whether or not the "small particle" remaining on the surface was redeposited, or remained from the initial ablative of actions is irrelevant to the claims as written. The issue of deposition or resettling of debris from ablation is only necessary to the process in claims 2 & 10-21, and note that the carbon enrichment discussed by applicant (pages 21-22 of response), as proposed by Krajnovich et al., is an example of a technique which would read on applicants' claim 3, thus the use of such a technique does not exclude

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applicants claims 1, 3-4, 7-9, or 33-35. Read an et al. citation of Krajnovich et al., who show that in their process of cone formation is due to local carbon enrichment of the surface being ablated, instead of ablation debris, does not preclude debris having any effect in Brennan et al., as Brennan et al. explicitly note the effect of remaining small particles, as well as citing Krajnovich et al., without explicitly saying how Krajnovich applies to their particle discussion, therefore applicant's exclusion of particles from debris of having any effect on Brennan et al. is process is not considered warranted. Furthermore, while as the examiner previously stated Brennan et al. does not discuss deposition of debris material in cone formation, the term "small particle of material that remains" would generally be interpreted as being a piece of material separate from the substrate, and if it is a particle as taught, & remains after ablation, it would have been logical to one of ordinary skill to conclude that it is classifiable as ablation debris. Resettling may include leaving the surface and returning, or shifting around on the surface, which would inherently occur if the particle while not ejected, was separated from the surface, as the material of the particle could no longer possibly be in the same location, as it previously resided, as the particle had been separated from the surface in that location no longer truly exists.

With respect to applicant's comments concerning [0095] of Brennan et al. discussing rapid ejection of ablation material, it is agreed that rapid ejection does not necessarily imply resettling of ablation debris, however it is also noted that he does not preclude it, nor does use of extrinsic masks exclude or include the presence of ablation debris, especially considering that applicants "initiator" & "shadowing" are defined and discussed so as to necessarily include such extrinsic masks.

If considering Brennan et al. is taught remaining "small particle of material" to be ablation debris, the use thereof is then considered suggested by Brennan et al., and teachings of fluence in its effect on ablation ([0099], [0109], [0126-133], etc.). Alternately, as previously applied Taylor et al. (The Effects of Debris Formation on the Morphology of Excimer Laser Ablated Polymers) specifically shows the effect that particulate material can play in debris formation, where it is noted that in the first paragraph Taylor et

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al. teach that the composition of this decree is mainly elemental carbon, hence is Taylor et al. would have been an obvious source of procedures & parameters for use in the cone formation taught in Brennan et al., as they relate to the taught cone formation from particles on the surface, as well as elemental carbon, which is consistent with the taught carbon enrichment of Krajnovich et al., as the reason that elemental carbon debris may initiate cone formation is analogous to why carbon enrichment of the surface may also initiate cone formation, especially as it makes clear that the use of one mechanism does not preclude the presence of the other.

8. Claims 1 & 8 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Burns et al. (5172473).

Claims 1-5, 7-8, 10-16, 18-20, 33 & 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Burns et al., optionally in view of Taylor et al., discussed in sections 5-6 & 12 of the action mailed 8/23/2006.

Note that for claim 1, as amended the mask of dots (column 4, lines 45-59; column 9, lines 10-30), which is opaque to the laser beam and forms conical projections in the polymer, which may be polyimide, reads on applicants' "initiator" and the claimed "shadows" therefrom, as amended, while the metallization of the surface after the formation of the polyimide cones reads on applying "an adhesive" as redefined by applicants.

It is further noted that redeposition of ablative material does occur, as in column 6, lines 51-53, Burns et al. explicitly note that it is necessary to plasma etch the cone patterned surface in order "to remove polyimide debris left behind from the laser ablation" before overall metallization is performed which adheres to the polyimide cones. It is also noted that the abstract specifically teaches "The individual conical projections are comprised of an ablative material,...", which is suggestive of readout posited ablated material been included in the cone composition, however it could also be considered ambiguous language where it is possible that they might have meant material that can be ablated

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(although that is not what he literally says", however as the laser formation of cones discussion in column 9 notes that polymer was removed by laser from between the cones by optimized gas flow, this does not preclude accumulation of debris on the cones. In addition to previous discussion concerning Taylor et al., it would've been obvious to one of ordinary skill in the art to clarify the possible role of debris in cone formation as indicated by the above recited disclosures by reference to published mechanistic descriptions of the process as represented by Taylor et al. and to employ such mechanisms as applicable to the laser ablation cone formation process.

The examiner also notes that the size of cones preferred in Burns et al. is about 2-6 mils & = about 50-150 microns, which is larger than applicants specifically claimed dimensions such as in claim 33 or 36, however Burns et al. also note that spacing and height of the cones is defined by the dirt expected to contaminate the surface of the cones, where smaller size and quantity of dirt expected may employ smaller and denser conical projections, hence particular size employed would be determined by the expected dirt exposure, thus reasonably expected to encompass smaller sized cones for cleaner environments, such that it would've been obvious to one of ordinary skill in the art to employ smaller sizes where applicable, and with respect to applicant's claims is noted that the particular height has very little meaning as there is no context with respect to how the structures formed affect either the coating or any enduses, such that their particular dimensions provide little significance.

9. Claims 9, 17, 21, 25-26 & 34-35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Brennan et al., optionally in view of Taylor et al., as applied to claims 1-5, 7-8, 10-16, 18-20, 33 & 36 above, and further in view of Murthy et al. (6,120,131), discussed in section 13 of the action mailed 8/23/2006.

10. Applicant's arguments filed 11/24/2006, discussed above have been fully considered but they are not persuasive.

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11. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.


12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marianne L. Padgett whose telephone number is (571) 272-1425. The examiner can normally be reached on M-F from about 8:30 a.m. to 4:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy Meeks, can be reached at (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MLP/dictation software

2/26/2006

  
**MARIANNE PADGETT**  
**PRIMARY EXAMINER**